



INVESTOR IN PEOPLE

The Patent Office
Concept House
Cardiff Road
Newport
South Wales
NP10 8QQ

CERTIFIED COPY OF PRIORITY DOCUMENT

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation and Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents originally filed in connection with the patent application identified therein together with the statement of inventorship and of right to grant of a Patent (Form 7/77), which was subsequently filed.

In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1985 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

In accordance with the rules, the words "public limited company" may be replaced by p.l.c., plc, P.L.C. or PLC.

Re-registration under the Companies Act does not constitute a new legal entity but merely subjects the company to certain additional company law rules.

Signed

Dated 19 June 2001

RECEIVED
OCT 02 2001
Technology Center 2600

THIS PAGE BLANK (USPTO)

The
Patent
Office



1/77

The Patent Office

Cardiff Road
Newport
Gwent NP9 1RH

Request for grant of a patent

1. Your reference 03 35789

2. Patent application number 0015864.2

29JUN00 E548802-5 002094
P01/7700 0.00-0015864.2

28 JUN 2000

3. Full name, address and post code of the or each applicant
Nokia Corporation
Keilalahdentie 4
02150 Espoo
Finland

Patents ADP number

If the applicant is a corporate body, give the country/state of its incorporation

FI

7652217001

4. Title of the invention
METHOD AND APPARATUS FOR ACCESSING A TEXT
BASED INFORMATION SERVICE

5. Name of your agent
VENNER, SHIPLEY & CO

"Address for service" in the United Kingdom to which all correspondence should be sent

20 LITTLE BRITAIN
LONDON
EC1A 7DH

Patents ADP

1669004

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or each of these earlier applications and the or each application number

Country

Priority application number

Date of filing

7. If this application is divided or otherwise derived from an earlier UK application, give the number and filing date of the earlier application

Number of earlier application

Date of Filing

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'YES' if:
a) any applicant in 3. above is not an inventor, or
b) there is an inventor who is not named as an applicant, or
c) any named applicant is a corporate body)

YES

THIS PAGE BLANK (USPTO)

Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form.
Do not count copies of the same document

Continuation sheets of this form

Description	8
Claim(s)	4
Abstract	1
Drawing(s)	4 x 4

10. If you are also filing any of the following state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant
of a patent (*Patents Form 7/77*)

Request for preliminary examination and
search (*Patents Form 9/77*) 1

Request for substantive examination
(*Patents Form 10/77*)

Any other documents

11. I/We request the grant of a patent on the basis of this application.

Signature
Venned Shipley & Co.

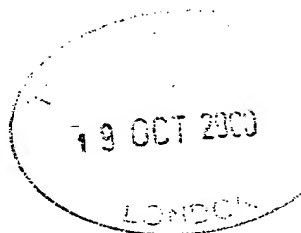
Date
28 June 2000

12. Name and daytime telephone number of
person to contact in the United Kingdom JAN WALASKI
020 7600 4212

THIS PAGE BLANK (USPTO)

Statement of inventorship and
of right to grant of a patent

7/77



The Patent Office

Cardiff Road
Newport
Gwent NP9 1RH

1. Your reference 03 35789

2. Patent application number 0015864.2

3. Full name, address and post code of the or
each applicant Nokia Corporation
Keilalahdentie 4
02150 Espoo
Finland

Patents ADP number

If the applicant is a corporate body, give the
country/state of its incorporation

4. Title of the invention METHOD AND APPARATUS FOR ACCESSING A TEXT
BASED INFORMATION SERVICE

5. State how the applicant(s) derived the right
from the inventor(s) to be granted a patent By virtue of an assignment dated 3 July 2000

6. How many, if any, additional Patents Forms
7/77 are attached to this form?

7. I/We believe that the persons named over the page (and on any extra
copies of this form) is/are the inventor(s) of the invention which the
above patent application relates to.

Signature

Date

17 October 2000

Matthew Read

8. Name and daytime telephone number of
person to contact in the United Kingdom

MATTHEW READ
020 7600 4212

THIS PAGE BLANK (USPTO)

Patents Form 7/77

Enter the full names, addresses and postcodes of the inventors in the boxes and underline the surnames

STEFAN IVEHAMMAR

Ektunavägen 35

S-589 33 Linköping

Sweden

Patents ADP number 68409465001

Patents ADP number

Patents ADP number

THIS PAGE BLANK (USPTO)

Method and Apparatus for Accessing a Text Based Information Service

This invention relates to the provision of text based information services,
5 particularly but not exclusively to a method of accessing a teletext service through a television system.

The provision of text based information services, for example teletext, for viewing
on a conventional television receiver, is well-known. The BBC's Ceefax™ service
10 and ITV's Teletext™ service are examples of commercial versions of teletext services. Teletext is a data format which enables data to be transmitted within a video signal. Commonly, teletext data is encoded in unused parts of the video signal, for example in the vertical blanking interval. Teletext data can also be
transmitted over a dedicated channel, if this is available, for example in a cable or
15 satellite television system.

In a conventional television system having a teletext facility, a viewer switches
between the television and teletext modes using, for example, a 'TEXT' button on a
remote control unit. In the teletext mode, a viewer selects a page that he wishes to
20 view by entering the page number on the remote control unit. Page numbers are defined in the teletext standard as a 3-digit number in the range 100 to 899, consisting of one 'magazine' digit plus two page number digits.

Increasingly, television viewers are demanding, and service or programme providers
25 seeking to provide, additional information relating to television programmes currently being broadcast. For example, television viewers can retrieve scores, detailed results and other facts when watching sports programmes. Cooking programmes often display a page number which sets out the recipes which have been used in the programme. At present, a service provider notifies viewers that
30 there is a teletext page with more information available, by incorporating suitable text in the standard video signal, for example, "See Teletext Page 580". In response, the viewer presses the TEXT button on his remote control unit to enter

teletext mode, and enters the previously displayed three digit page number using the numeric key pad on the remote control unit. This can be inconvenient, since the viewer may forget the page number after switching to the teletext mode, or may enter an incorrect number or even be unable to enter the number easily, for example
5 if he is watching the television programme in low light conditions. Furthermore, the viewer can also have difficulties in reading the number on the screen for the relatively brief time that it appears. Finally, and not to be underestimated, is the general propensity of television viewers to take the option that requires least effort. Faced with the option of entering four keystrokes on their remote control unit, or
10 continuing to watch the programme, many viewers will simply ignore the additional information available to them.

The present invention aims to provide viewers with easier access to such additional information.

15 According to the present invention, there is provided apparatus for accessing a text based information service from a television programme service, comprising means for providing link information for display during the television programme service, the link information being associated with a selected page of the text based
20 information service, means for receiving a page independent acceptance signal from a display controller, and means for providing the selected page for display in response to the acceptance signal.

By using an acceptance signal which is independent of the page to which the link
25 information corresponds, and therefore breaking the one-to-one correspondence between the keystrokes entered on the display controller and the digits of a page identifier which identifies a page, the process of selecting a page of the text based information service can be made considerably simpler and more reliable. In the case of a teletext service using three digit page identifiers, the process of selecting a
30 page can be reduced by three keystrokes, from the four keystrokes required in a conventional system to change to teletext mode from TV viewing mode and then to enter a three digit number, to the single keystroke required in accordance with the invention to accept a direct transfer to the page identified on the television screen.

Preferably, the link information is provided in a subtitle line.

5 The apparatus can include means for highlighting the link information, so that the availability of the information in a readily accessible way is drawn to the viewer's attention.

10 The apparatus can further comprise means for distinguishing link information from information which does not comprise a link to the text based information service. Preferably, this comprises means for detecting a tag associated with the link information. On detection, the link information can be displayed irrespective of the preferences set by the viewer, so that a viewer does not have to manually set the text viewing mode to obtain the benefit of the invention.

15 According to the invention, there is further provided a method of accessing a text based information service from a television programme service via a television receiver, comprising the steps of providing link information associated with a selected page of the text based information service for display during the television programme service, receiving a page independent acceptance signal from a display
20 controller and providing the selected page for display in response to the acceptance signal.

According to the invention, there is also provided a program to be executed by a processor to enable access to a text based information service from a television
25 programme service, in which link information associated with a selected page of the text based information service is displayed concurrently with a television programme image, wherein the program, when executed by the processor, implements the steps of receiving a page independent acceptance signal from a display controller and providing the selected page for display in response to the
30 acceptance signal.

There is also provided, in accordance with the invention, apparatus for providing a text based information service to a television receiver, comprising means for

providing link information for display during a television programme service, the link information being associated with a page identifier which identifies a selected page of the text based information service, and means for tagging the link information to indicate to the receiver that information received by it includes link
5 information.

Embodiments of the invention will now be described by way of example with reference to the accompanying drawings, in which:

Figure 1 is a schematic diagram of a digital television system;

10 Figure 2 is a schematic diagram of the digital television receiver which forms part of the digital television system shown in Figure 1;

Figure 3 is a schematic diagram of the software running in the digital television receiver shown in Figure 2;

Figure 4 is a schematic flow chart illustrating the operation of the invention; and

15 Figure 5 is a schematic flow chart illustrating the operation of the invention with tagged page numbers.

Referring to Figure 1, a digital television system with a teletext capability, for example teletext which conforms to the ITU-R System B Teletext format, also
20 known as EBU Teletext, comprises a digital broadcast station 1 operating according to the Digital Video Broadcasting (DVB) standard and a DVB-compliant digital television receiver 2.

The broadcast station 1 provides a combined television/teletext signal, conveyed for
25 example as MPEG-2 transport stream packets in accordance with current DVB standards, from a broadcast system 3, which is for example a terrestrial transmitter, a cable TV head-end or a satellite broadcast system. The combined signal is produced by multiplexing fixed format teletext content 4 with broadcast picture data 5 at a multiplexer 6.

30

The digital television receiver 2 includes a receiver 7 and a set top box (STB) 8 coupled to a television set 9. The receiver 7 can be, for example, an aerial, cable receiver or satellite dish, together with the associated electronics for receiving a

television signal. The functionality provided by the set top box 8 and/or the receiver electronics can alternatively be integrated into the television set 9. The digital television receiver 2 is controlled by a remote control unit 10, also referred to herein as a display controller. The digital television receiver 2 can alternatively be
5 any apparatus capable of receiving a television/teletext signal, for example a personal computer having a TV display card and teletext decoder.

Referring to Figure 2, the set top box 8 comprises a video stream processor 11 for processing the MPEG-II transport stream from the receiver 7, an audio stream
10 processor 12, a teletext stream processor 13 for processing the teletext packets and a display 14, for example a conventional CRT display forming part of the television 9, for displaying television images and teletext data. Cache memory 15 is provided to enable local storage of teletext pages for subsequent rapid retrieval.

Referring to Figure 3, the video stream processor 11 and teletext stream processor
15 13 modules are implemented in software by television viewing software 16, for example as found in a conventional DVB-compliant digital television receiver and teletext decoding and display software, referred to herein as On Screen Display (OSD) software 17, which is also found in conventional DVB-compliant digital
20 television receivers having a teletext decoding capability.

The OSD software 17 is responsible for decoding streams of teletext packets and controlling the display of the resulting teletext pages on the display 14. For example, a user selects page number 555 on the remote control unit 10 by pressing a
25 'TEXT' button to enter teletext mode and then typing in the character '5' three times. This selection is received at the STB 8. In response, the OSD software 17 extracts text and graphic information corresponding to page 555 from the video stream and displays it on the display 14. If a teletext subtitle page is selected, for example page 888 in the United Kingdom, the OSD software 17 extracts the subtitle
30 stream from the video signal and overlays it onto the video picture.

In accordance with the invention, an additional software module is provided, referred to herein as the instant access module 18, to run alongside the viewing

software 16 and the OSD software 17 and to implement the functionality described below with reference to Figures 4 and 5.

Referring to Figure 4, when a service provider wishes to notify television viewers that there is additional information relating to the current television programme available on a certain teletext page, for example page number 345, the service provider transmits a teletext subtitle line to this effect, for example "Top scores on Teletext page 345" (step s1). The teletext subtitle line is transmitted on a teletext subtitle page which is associated with a language code, for example, ENG for English, in the teletext descriptor in the digital video broadcasting service information system known as DVB-SI. A subtitle page in this form is automatically displayed by a conventional DVB-compliant digital television receiver with OSD software, as long as the viewer has enabled teletext subtitling and selected the correct subtitling language (step s2).

To ensure that a viewer's attention is drawn to the additional available information, the instant access module 18 highlights the page number in the subtitle line, for example by causing the page number to flash or by displaying it in a different colour (step s3). In response to the display of the subtitle line containing the highlighted number, the viewer presses a selected key on the remote control unit (RCU) 10, for example an 'OK' key or the 'TEXT' key (step s4). On receiving this key, the instant access software 18 switches the viewing mode to teletext mode and selects the highlighted page number (step s5). The OSD software 17 then displays the selected page (step s6).

Referring to Figure 5, the instant access software 18 can be configured to differentiate subtitle lines containing page number references from ordinary subtitle lines which incidentally contain three digit numbers, by agreeing a coding scheme with the service provider. For example, the page number is tagged by the service provider prefixing it with a tag combination which would not normally be used (step s10). For example, a combination of [Flash] and [Steady] tags is used, where the [Flash] tag causes the text after it to flash and the [Steady] tag switches off the flash, in the format: [Flash][Steady]Page Number. The subtitle line with tagged page

number is transmitted to the receiver 7 (step s11). The instant access software 18 scans through all incoming subtitle lines (step s12) looking for the [Flash][Steady] tag combination. If found, then assuming that teletext subtitling is enabled (step s13), the page number following the tag combination is highlighted and displayed as available for the viewer to accept (step s14). As described in relation to Figure 4, the viewer can accept the offer to view the page corresponding to the displayed page number by pressing a single key on his remote control unit, which triggers display of the corresponding page (steps s15 to s17).

10 The tag procedure permits enhanced functionality by allowing subtitle lines to be displayed even if the viewer has not enabled teletext subtitling or has selected a non-transmitted language. For example, on detecting a tag, the instant access software 18 overrides the viewer's preferences, as indicated in Figure 5 by the broken lines, sets subtitling mode (step s20) and language and displays a subtitle line with tagged page number (step s14).

The functionality described above with reference to Figures 4 and 5 can be implemented in hardware, software or a combination of hardware and software. A software implementation means that no changes need to be made to the STB hardware or to the tools used by service providers to create teletext pages and insert them into teletext data streams. In this case, the instant access software can be part of the system software in the STB 8 or it can be provided as downloadable application software.

25 Although the above description is based on the viewer activating the software using only a single entry on his remote control unit, it is envisaged that more than one keystroke is possible. One situation in which two keystrokes may be appropriate is to avoid accidental key presses on the remote control unit 10, in which case the viewer can be asked to press a second key in response to a screen message such as "Confirm? YES - press 1, NO - press 2".

It will be apparent to the person skilled in the art that any form of notification can be used to inform a viewer that there is additional information relating to a current

television programme available on teletext. For example, there may simply be a text message stating that additional information is available, without a specific page number being given. Alternatively, an icon may appear, which the viewer has previously been informed represents the availability of further information.

5

While the invention has been specifically described in relation to teletext, it is applicable to any type of text based information service used in conjunction with a television system.

Claims

1. Apparatus for accessing a text based information service from a television programme service, comprising :

5 means for providing link information for display during the television programme service, the link information being associated with a selected page of the text based information service;

means for receiving a page independent acceptance signal from a display controller; and

10 means for providing the selected page for display in response to the acceptance signal.

2. Apparatus according to claim 1, wherein the acceptance signal corresponds to a set of keystrokes on the display controller.

15

3. Apparatus according to claim 2, wherein the keystroke set comprises less than four keystrokes.

4. Apparatus according to claim 3, wherein the keystroke set comprises a single
20 keystroke.

5. Apparatus according to any one of the preceding claims, wherein said link information providing means includes means for inserting the link information into a subtitle line.

25

6. Apparatus according to claim 5, further comprising means for highlighting the link information.

7. Apparatus according to any one of the preceding claims, further comprising
30 means for distinguishing link information from information which does not comprise a link to the text based information service.



8. Apparatus according to claim 7, wherein said distinguishing means comprises means for detecting a tag associated with the link information.

5 9. Apparatus according to claim 8, further comprising means responsive to the detection of a tag configured to display the link information irrespective of predetermined display preferences.

10. Apparatus according to any one of the preceding claims, wherein the text based information service comprises teletext.

10

11. Apparatus according to any one of the preceding claims, comprising a television programme service according to the digital video broadcasting (DVB) standard.

15 12. A method of accessing a text based information service from a television programme service via a television receiver, comprising the steps of providing link information associated with a selected page of the text based information service for display during the television programme service, receiving a page independent acceptance signal from a display controller and providing the selected page for
20 display in response to the acceptance signal.

13. A method according to claim 12, wherein the acceptance signal corresponds to a set of keystrokes on the display controller.

25 14. A method according to claim 13, wherein the keystroke set comprises less than four keystrokes.

15. A method according to claim 14, wherein the keystroke set comprises a single keystroke.

30

16. A method according to any one of claims 12 to 15, comprising providing the link information for display as a subtitle during the television programme service.

17. A method according to any one of claims 12 to 16, including highlighting the link information to be displayed.

18. A method according to claim 17, wherein the highlighting comprises causing
5 the link information to flash periodically when displayed.

19. A method according to any one of claims 12 to 18, wherein the link information comprises a page number.

10 20. A method according to any one of claims 12 to 19, wherein the link information includes an identification tag for distinguishing the link information from information which does not comprise a link to the text based information service.

15 21. A method according to claim 20, wherein the tag comprises a non-display character.

22. A method according to claim 20 or 21, comprising displaying a subtitle line which includes tagged link information irrespective of viewer preferences.

20

23. A program to be executed by a processor to enable access to a text based information service from a television programme service, in which link information associated with a selected page of the text based information service is displayed concurrently with a television programme image, wherein the program, when
25 executed by the processor, implements the steps of receiving a page independent acceptance signal from a display controller and providing the selected page for display in response to the acceptance signal.

24. A program including program code for performing the steps of any one of
30 claims 12 to 22 when the program is run by a processor.

25. Apparatus for providing a text based information service to a television receiver, comprising:

means for providing link information for display during a television programme service, the link information being associated with a page identifier which identifies a selected page of the text based information service; and

5 means for tagging the link information to indicate to the receiver that information received by it includes link information.

26. Apparatus for accessing a text based information service from a television programme service substantially as hereinbefore described with reference to the accompanying drawings.

10

27. A method of accessing a text based information service from a television programme service substantially as hereinbefore described with reference to the accompanying drawings.

15 28. A program to be executed by a processor to enable access to a text based information service from a television programme service substantially as hereinbefore described with reference to the accompanying drawings.

20 29. Apparatus for providing a text based information service to a television receiver substantially as hereinbefore described with reference to the accompanying drawings.

25

Abstract

Method and Apparatus for Accessing a Text Based Information Service

5

A discreet teletext subtitle line is used to notify viewers that a teletext page exists with additional information relating to a television programme. Viewers have instant access to this teletext information by pressing a single key on a remote control. A digital television receiver accepts the single key press in response to the subtitle line and automatically switches to teletext mode and displays the relevant page, without the viewer needing to enter the page number on his remote control.

10

THIS PAGE BLANK (USPTO)

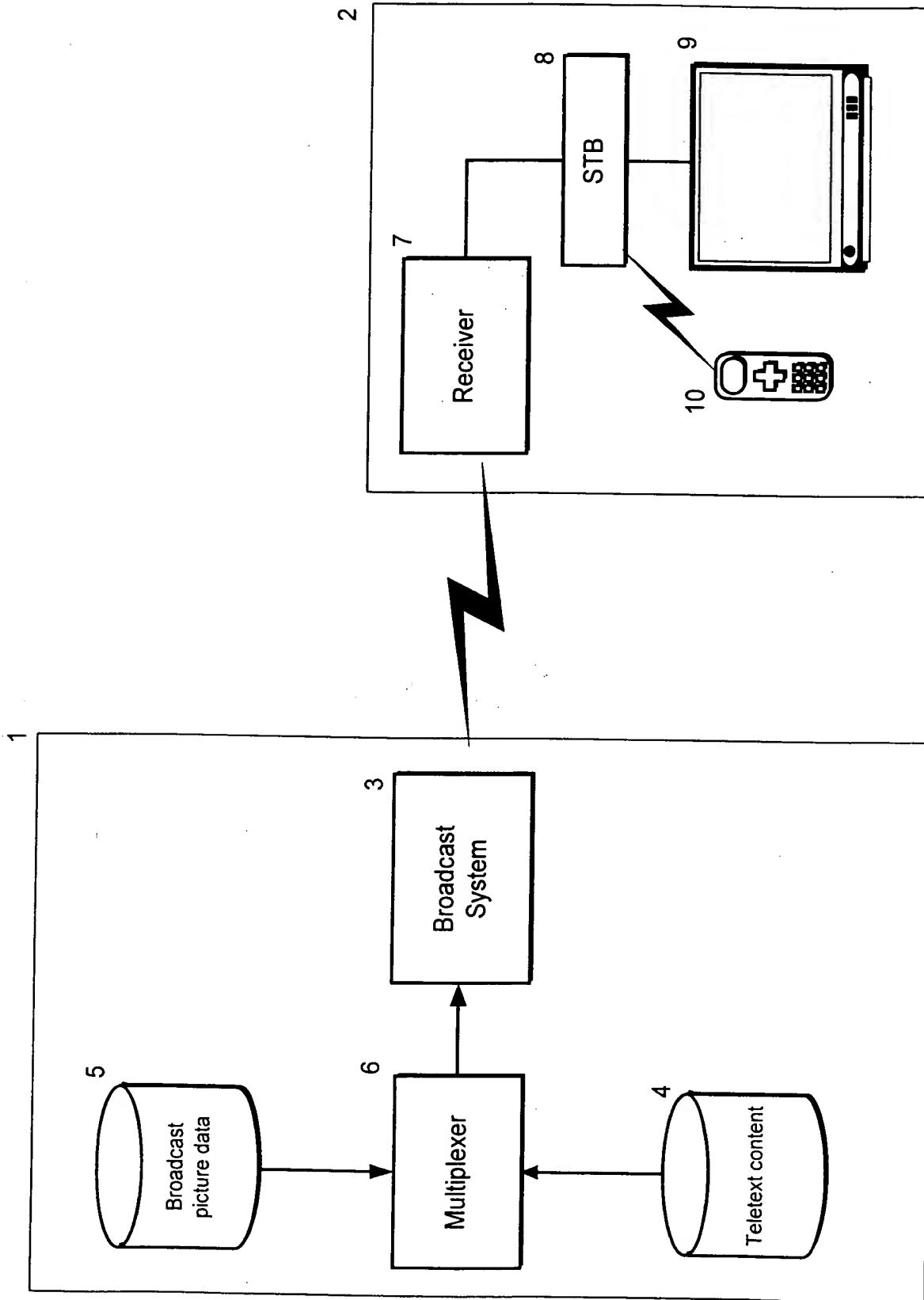


Figure 1

THIS PAGE BLANK (USPTO)

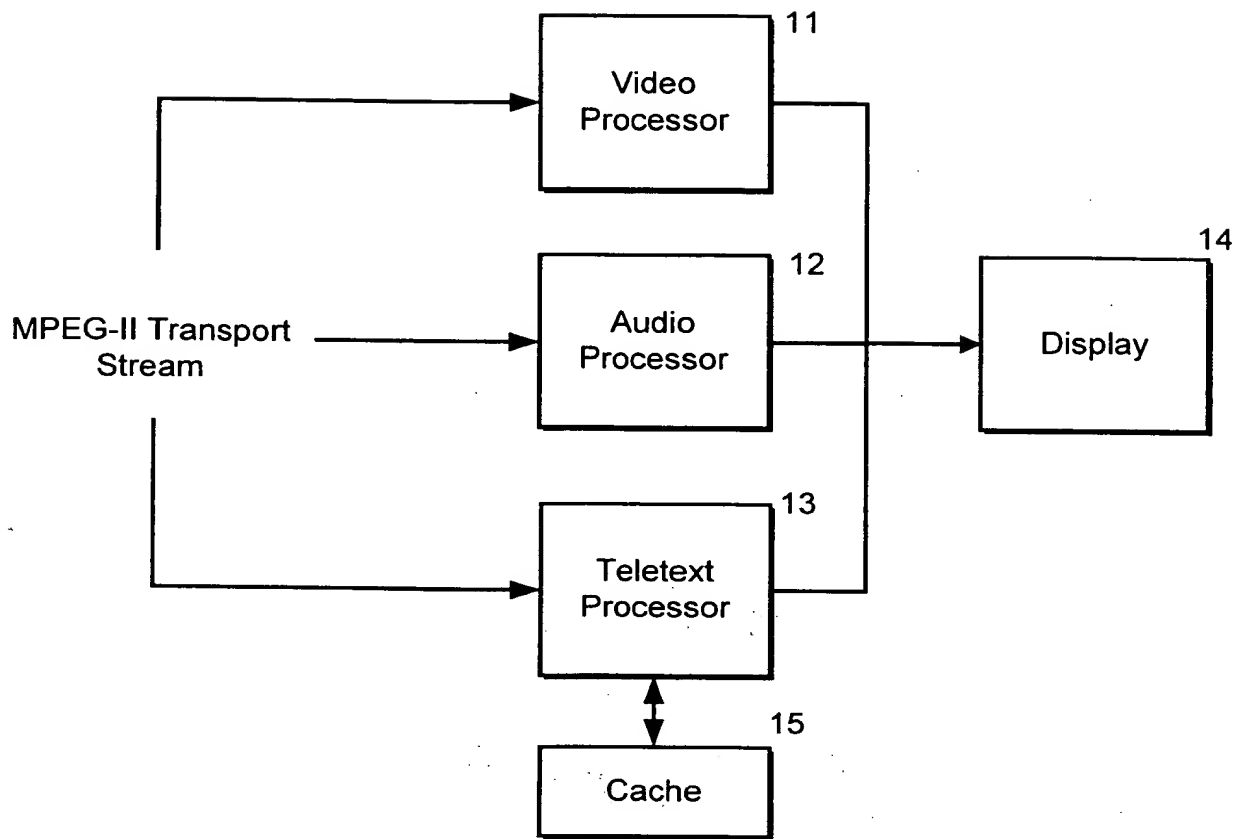


Figure 2

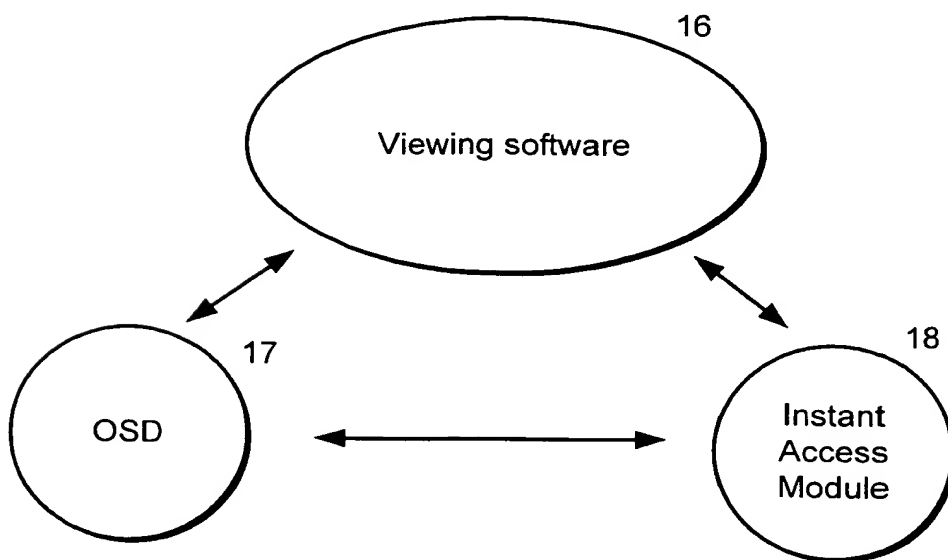


Figure 3

THIS PAGE BLANK (USPTO)

Service Provider

STB

Remote Control

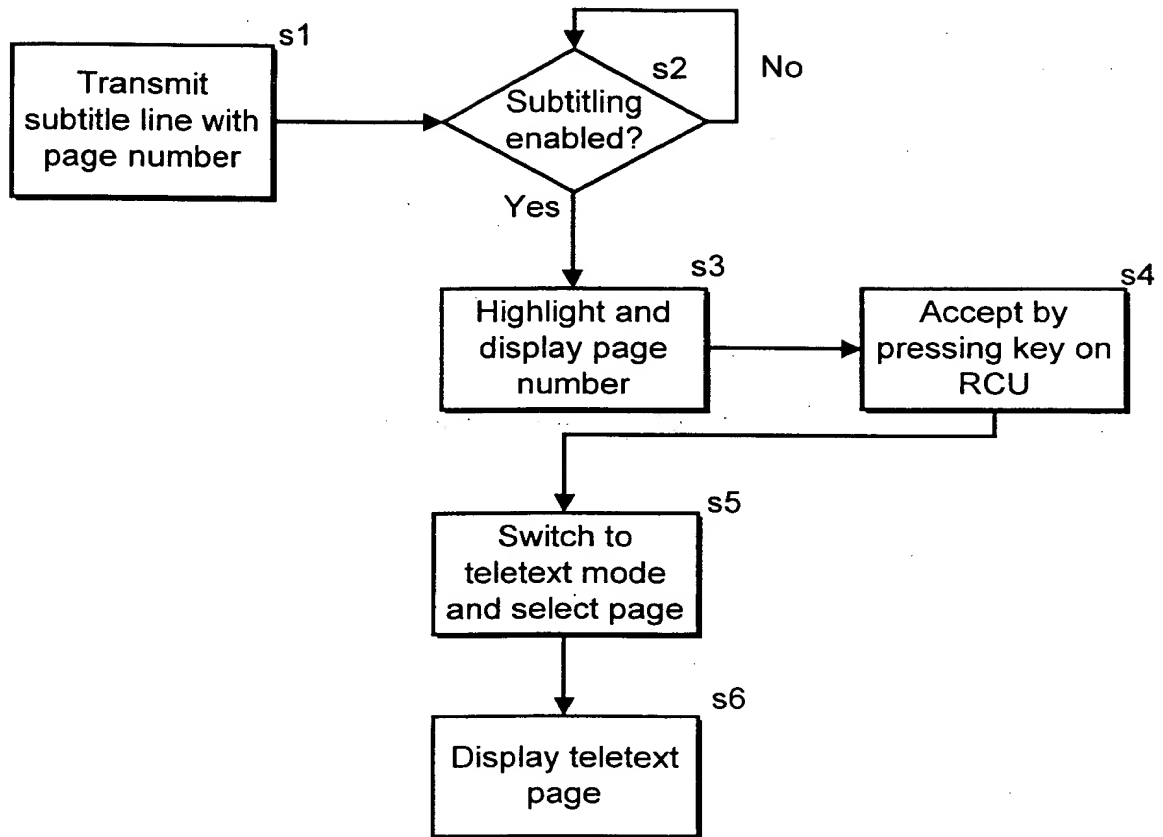


Figure 4

THIS PAGE BLANK (USPTO)

Service Provider

STB

Remote Control

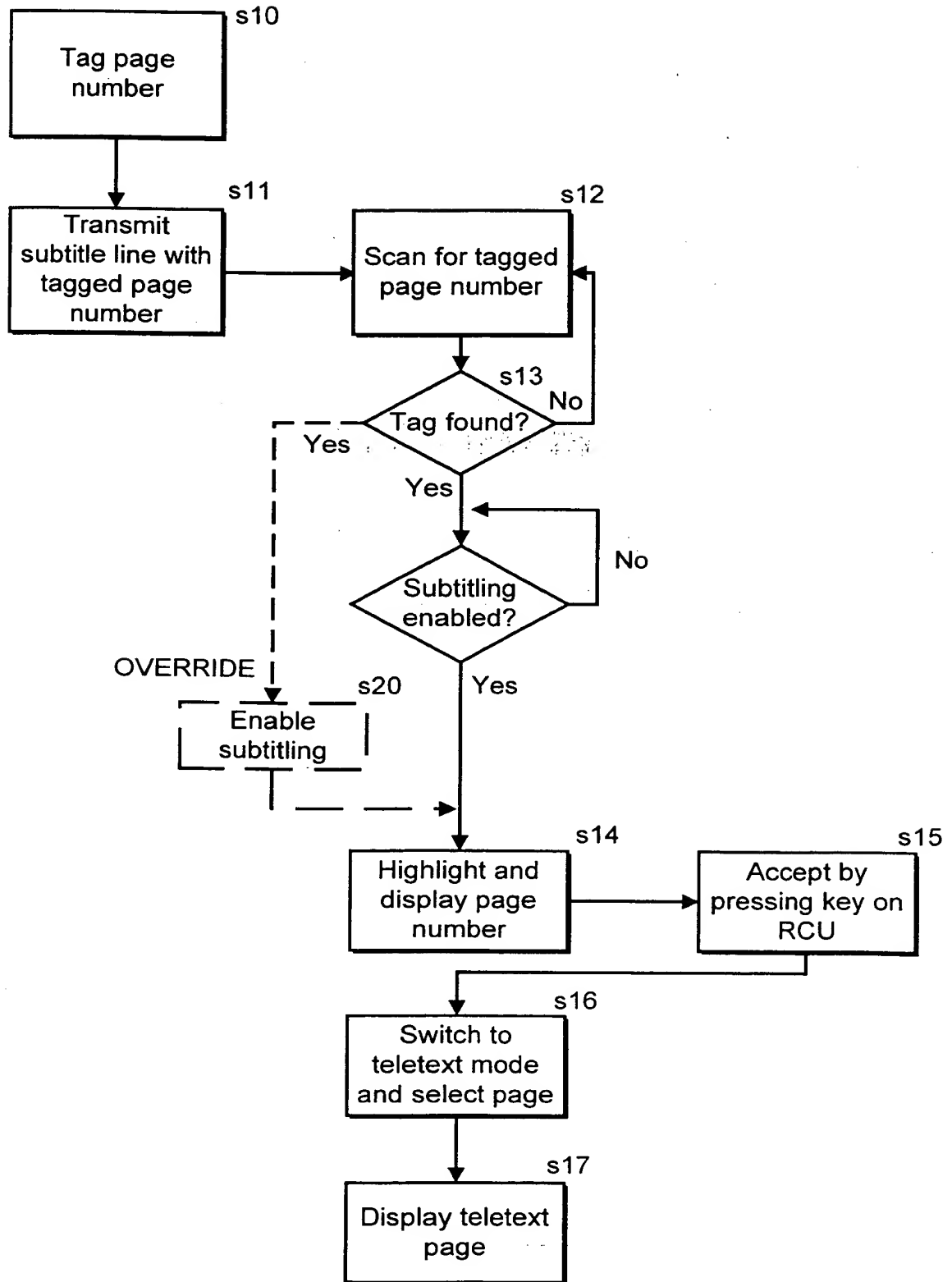


Figure 5

THIS PAGE BLANK (USPTO)

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.

THIS PAGE BLANK (USPTO)